

Remarks

Reconsideration and withdrawal of the outstanding rejections are respectfully requested. Claims 15-82 are now pending in this application with claims 15, 23, 31, 37, 46, 52, 61, 70 and 79-82 being the independent claims. Reconsideration of claims 15-33 is respectfully requested.

I. Support for the Amendments

Support for the foregoing amendments to the claims may be found throughout the specification as originally filed, either inherently or explicitly. Specifically, support for the amendments to independent claims 15, 23 and 31 may be found in the originally filed claims 15, 23 and 31 and in the specification at page 5, lines 1-6, page 6, lines 27-30 and page 13, lines 3-4. Support for new claims 34-82 may be found throughout the specification, specifically at page 4, lines 9-22, page 5, lines 1-6, 26, page 6, lines 27-30, page 11, lines 14-16 and page 13, lines 4-6. Hence, the foregoing amendments to the claims do not add new matter, and their entry into the present application is respectfully requested.

II. Apparent Errors in the Present Office Action

In the Office Action at page 2, section 1, the Examiner states that the Applicant's response was received on January 7, 1997, entered as Paper No. 3 and the pending claims are Claims 1-13. Applicant notes that the response was filed on July 25, 2001 and the pending claims are 15-33. Furthermore, the Office Action mailed on April 25, 2001 was Paper No. 6. The Applicant's response should have been entered as a number greater than 6. Applicant respectfully requests clarification in the next Action.

III. Sequence Rules

In the Office Action at page 2, section 2, the Examiner states that the application is a divisional of U.S. Application No. 08/196,003 wherein the applicant has complied with the sequence rules. However, this application is a continuation of U.S. Application No. 09/114,911, filed on July 14, 1998. Furthermore, Applicant has complied with the sequence listing rules in this application by filing a Request to Open New Disk File on September 20, 2000, with a paper copy of the sequence listing. Applicant submits herewith a copy of the Request, paper copy of the sequence listing, and postcard receipt date stamped September 20, 2000, for the convenience of the Examiner.

IV. The Rejection under 35 U.S.C. § 112, Second Paragraph

In the Office Action at pages 2-3, the Examiner has rejected claims 15-32 under 35 U.S.C. § 112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully traverses this rejection.

The Examiner states:

Claims 15 and 31 are indefinite because it is unclear if only three fragments in the composition need to be (in base pairs) approximately a multiple of an integer or, in the alternative, if each and every fragment in the composition need to be (in base pairs) approximately a multiple of an integer. Also, it is unclear from the claim language if the integer must be the same for every fragment, or in the alternative, if the integer may be different for each fragment.

Office Action, page 3.

Solely to advance prosecution and not in acquiescence to the Examiner's rejection, Applicant has amended the independent claims 15 and 31 to recite that "at least three nucleic acid fragments in base pairs is approximately a multiple of an integer with

respect to at least one of said at least 3 nucleic acid fragments." Applicant has also added new claims which recite "the size of said at least 3 nucleic acid fragments in base pairs is a multiple of an integer with respect to each other."

Applicant clearly states the subject matter of the claimed invention. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection.

V. *The Rejection under 35 U.S.C. § 102(b)*

In the Office Action at pages 4-7, the Examiner has rejected Claims 15-22 under 35 U.S.C. § 102(b) as allegedly anticipated by Carlson *et al.*, European Patent Application No. 0 466 404 ("Carlson"). Applicant respectfully traverses this rejection.

Under 35 U.S.C. § 102, a claim can only be anticipated if every element in the claim is expressly or inherently disclosed in a single enabling prior art reference. *See Kalman v. Kimberly Clark Corp.*, 713 F.2d 760, 771 (Fed. Cir. 1983), *cert. denied*, 465 U.S. 1026 (1984); *see also PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 1566 (Fed. Cir. 1996) ("To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter."). This requirement is not met by the disclosure of Carlson, which therefore cannot anticipate the invention as presently claimed.

Carlson does not disclose a ladder comprising a set of 3 fragments that are a multiple of an integer as claimed by the Applicant and Carlson does not disclose a ladder for determining the approximate mass of a nucleic acid in a sample. The Examiner is directed to Carlson's Figure 1. Clearly, Carlson's ladder contains many nucleic acid fragments of variable size that are radioactively labeled and could not be used to determine the approximate mass of a nucleic acid in a sample. Furthermore, there are not

three fragments in Carlson's radioactive ladder that are a multiple of an integer as claimed by Applicant.

The Examiner states:

that even if the claims are read more narrowly wherein the phrase "each of said fragments" refers to each and every fragment in the marker ladder composition, Carlson et al. would still read on it because these authors teach fragments (in base pairs) that are **approximately** a multiple of an integer.

Office Action, page 4. Applicant respectfully disagrees with the Examiner. As discussed in detail above, Carlson does not disclose every element of the claimed invention and while Applicant submits that Carlson is not even close to claimed invention, it is clear that a rejection under 35 U.S.C. § 102(b) cannot be maintained even if the art taught "approximately" the same invention.

Carlson fails to expressly or inherently disclose every element of the invention as presently claimed, and therefore cannot properly form the basis of a rejection under 35 U.S.C. § 102(b). Reconsideration and withdrawal of the rejection are therefore respectfully requested.

VI. *The Rejection under 35 U.S.C. § 103(a)*

In the Office Action at pages 4-7, the Examiner has rejected Claims 15-22 under 35 U.S.C. § 103(a) as allegedly obvious over Carlson. Applicant respectfully traverses this rejection.

The Examiner is respectfully reminded that:

[w]hen applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

(A) The claimed invention must be considered as a whole:

- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
- (D) Reasonable expectation of success is the standard with which obviousness is determined.

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Applicant reiterates and incorporates herein the remarks made above concerning the disclosure of Carlson. Carlson describes radioactive DNA ladders comprising a *mixture* of many DNA fragments of varying size. However, Carlson does not teach or suggest the marker ladder, kits and/or methods claimed by Applicant. Applicant submits that a reference that teaches a radioactive marker ladder made up of many fragments of variable size cannot teach or suggest Applicant's claimed invention. Carlson, in fact, appears to teach away from claimed invention.

Hence, Carlson is deficient as a reference upon which to base a *prima facie* case of obviousness. Accordingly, the burden required to sustain a *prima facie* case of obviousness has not been met.

Reconsideration and withdrawal of the rejection are therefore respectfully requested.

VII. Allowable Subject Matter

Applicant thanks the Examiner for indicating that claims 31-32 are allowable.

VIII. Objection to Claim

The Examiner objected to claim 33 as being dependent upon rejected claim 15. Applicant wishes to not amend claim 33 because claim 15 is still pending. Therefore, reconsideration and withdrawal of the objection are respectfully requested.

IX. Conclusion

All of the stated grounds of rejections have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding objections and rejections. Applicant believes that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. Prompt and favorable consideration of this Amendment is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

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Version with markings to show changes made

- (a) Claims 34-82 are sought to be added.
- (b) Claims 15, 23 and 31 are amended as follows:

In the Claims:

15. (Once Amended) A nucleic acid marker ladder for determining the approximate mass of a nucleic acid in a sample, said ladder comprising at least 3 nucleic acid fragments, wherein the size of each of said at least 3 nucleic acid fragments in base pairs is approximately a multiple of an integer with respect to at least one of said at least 3 nucleic acid fragments.

23. (Once Amended) A nucleic acid marker kit comprising a carrier [means] having in close confinement therein at least one container [means] where the first container [means contains] comprises a nucleic acid marker ladder, said ladder comprising at least 3 nucleic acid fragments, wherein the size of each of said at least 3 nucleic acid fragments in base pairs is approximately a multiple of an integer with respect to at least one of said at least 3 nucleic acid fragments.

31. (Once Amended) A method of preparing a nucleic acid marker ladder comprising:

- (a) generating at least two polymerase chain reaction (PCR) products wherein each product is generated from a template comprising a restriction endonuclease site and a primer comprising the restriction endonuclease site in the template;
- (b) joining the PCR products to produce a nucleic acid molecule; and

(c) completely digesting one or more nucleic acid molecules with at least one restriction endonuclease;

wherein a nucleic acid marker ladder is produced which comprises at least 3 nucleic acid fragments, wherein the size of each of said at least 3 nucleic acid fragments in base pairs is approximately a multiple of an integer with respect to at least one of said at least 3 nucleic acid fragments.